





***Individual Environmental Reports (IERs)  
8, 9, 10 and 11 Tier 2 Borgne and borrow***

***Chalmette Loop  
Hurricane Protection System  
and  
Improved Protection on the  
Inner Harbor Navigation Canal***



# Why are we here tonight?

To discuss the status of completed, in-progress and potential improvements to the Lake Pontchartrain and Vicinity portion of the Hurricane Storm Damage and Risk Reduction System.



# National Environmental Policy Act:

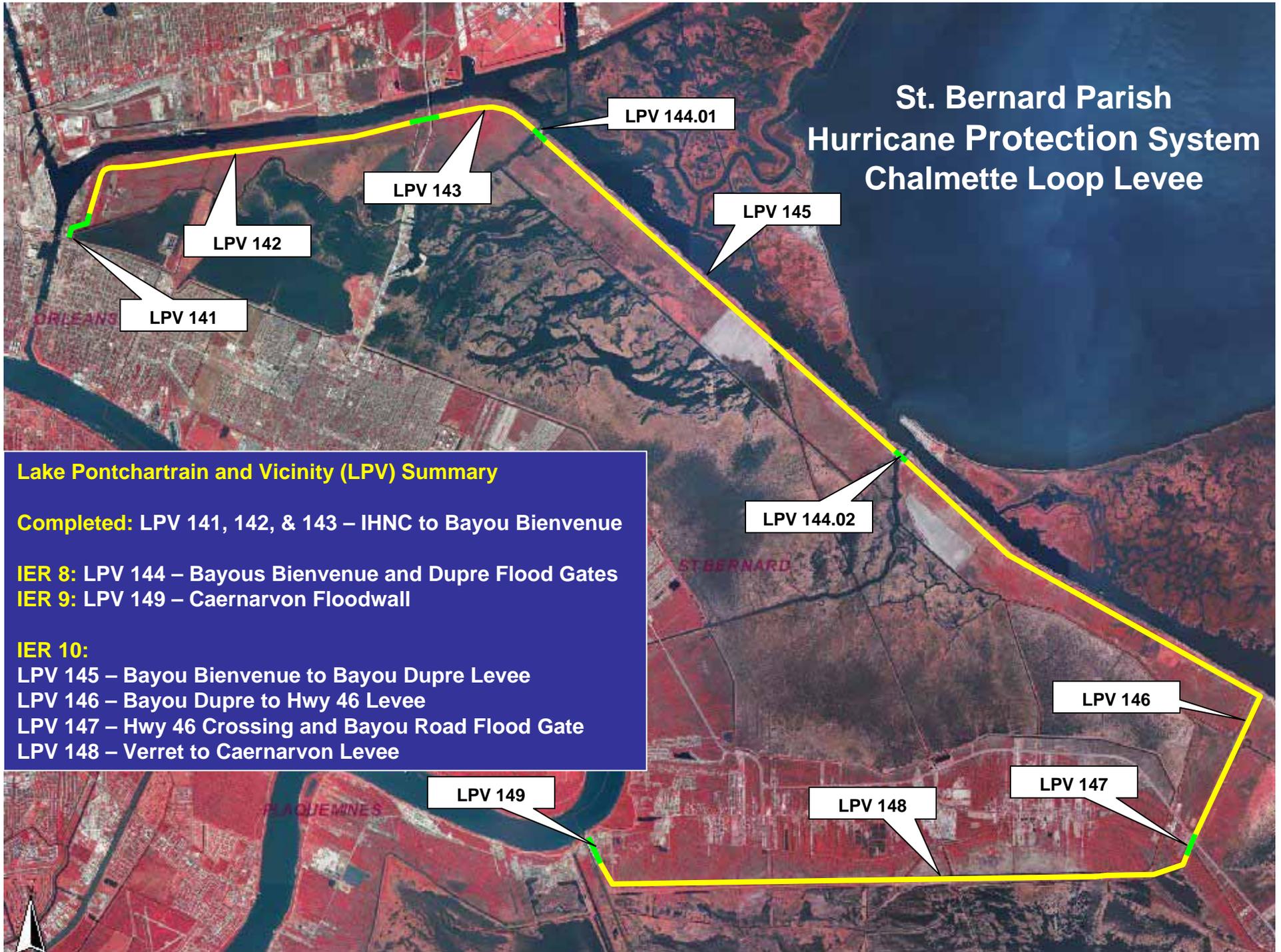
- Required for all major Federal actions
- Analyze potential impacts to the human and natural environment and investigate reasonable alternatives
- Analyses documented in Individual Environmental Reports (IER)
- Public Involvement is KEY! We want to hear from you!
- Goal: more informed decision making through public involvement



# NEPA Process and Path Ahead

- The NEPA process began with public scoping meetings for IERs 8,9,10 and 11 in March 2007
- From March 2007 through today project alternatives have been developed, impacts are being analyzed, and public input is being solicited
- Tentative timeframe of draft IER 30-Day public review period:
  - IER 8: Early June 08
  - IER 9: Late June 08
  - IER 10: Early July 08
  - IER 11: Tier 2 Borgne: Late June 08
- Final decisions will be made approximately 45 days later

# St. Bernard Parish Hurricane Protection System Chalmette Loop Levee





# Current Status

## **LPV 148.01: Verret to Caernarvon (Phase I)**

- Contract awarded 31 Oct 07
- Notice to proceed issued 14 Jan 08
- To date over 132,300 yards of material delivered
- Completion date: January 2009

## **LPV 144 – 149: Chalmette Loop Levee System**

- Investigating various options to provide 100-yr level of protection
- Scheduled to initiate design May/June 2008

## **St. Bernard Back Levee**

- Currently investigating the feasibility of incorporating the back levee into the Federal system



## IER 8

# Bayou Bienvenue and Bayou Dupre Flood Control Structures



# Bayou Bienvenue and Bayou Dupre Flood Control Structures



**Bayou Bienvenue (LPV 144.1) on the Orleans/St. Bernard Parish line**



**Bayou Dupre (LPV 144.2) in St. Bernard Parish, Louisiana**



# Bayou Bienvenue and Bayou Dupre Flood Control Structures

## Alternatives

- **Modify existing Control Structure in place to the 100 year elevation**
- **Reconstruct a new control structure at the existing location**
- **Construct a new control structure at any practical adjacent location (floodside or protected side of existing protection)**

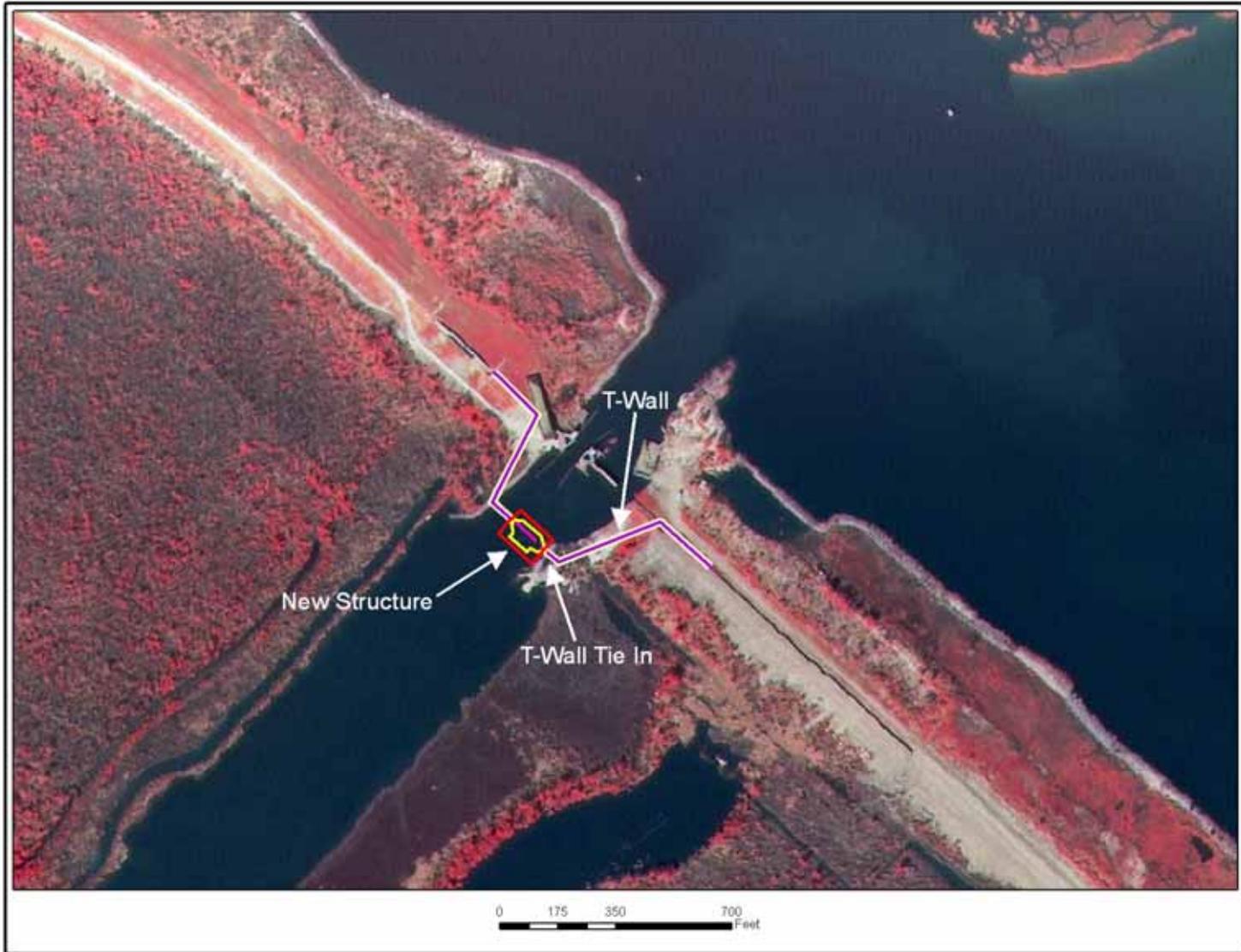


# Bayou Bienvenue and Bayou Dupre Flood Control Structures

If the final engineering design for the IER 11 IHNC surge protection structure would provide adequate protection for the Bayou Bienvenue area, then the IER 8 decision may be re-evaluated for Bayou Bienvenue, and the No Action alternative for the Bayou Bienvenue control structure could be selected.



# Conceptual Configuration of Protected Side Alternative - Bayou Bienvenue Control Structure



— *One Team: Relevant, Ready, Responsive and Reliable* —



# Conceptual Configuration of Protected Side Alternative Bayou Dupre Control Structure



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**IER 9**

# **Caernarvon Floodwall**

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# Status of IER 9

## Caernarvon Floodwall

**Draft IER anticipated for public release in late June**

**Once recommended plan is selected and IER is complete, Plans and Specifications (P&S) will begin**

**Construction scheduled to begin Spring 2009**



**Existing Floodwall**



## Caernarvon Floodwall: Alternative 1



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## Caernarvon Floodwall: Alternative 2



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# Caernarvon Floodwall: Alternative 3



# Caernarvon Floodwall: Alternative 4



# Caernarvon Floodwall: Alternative 5



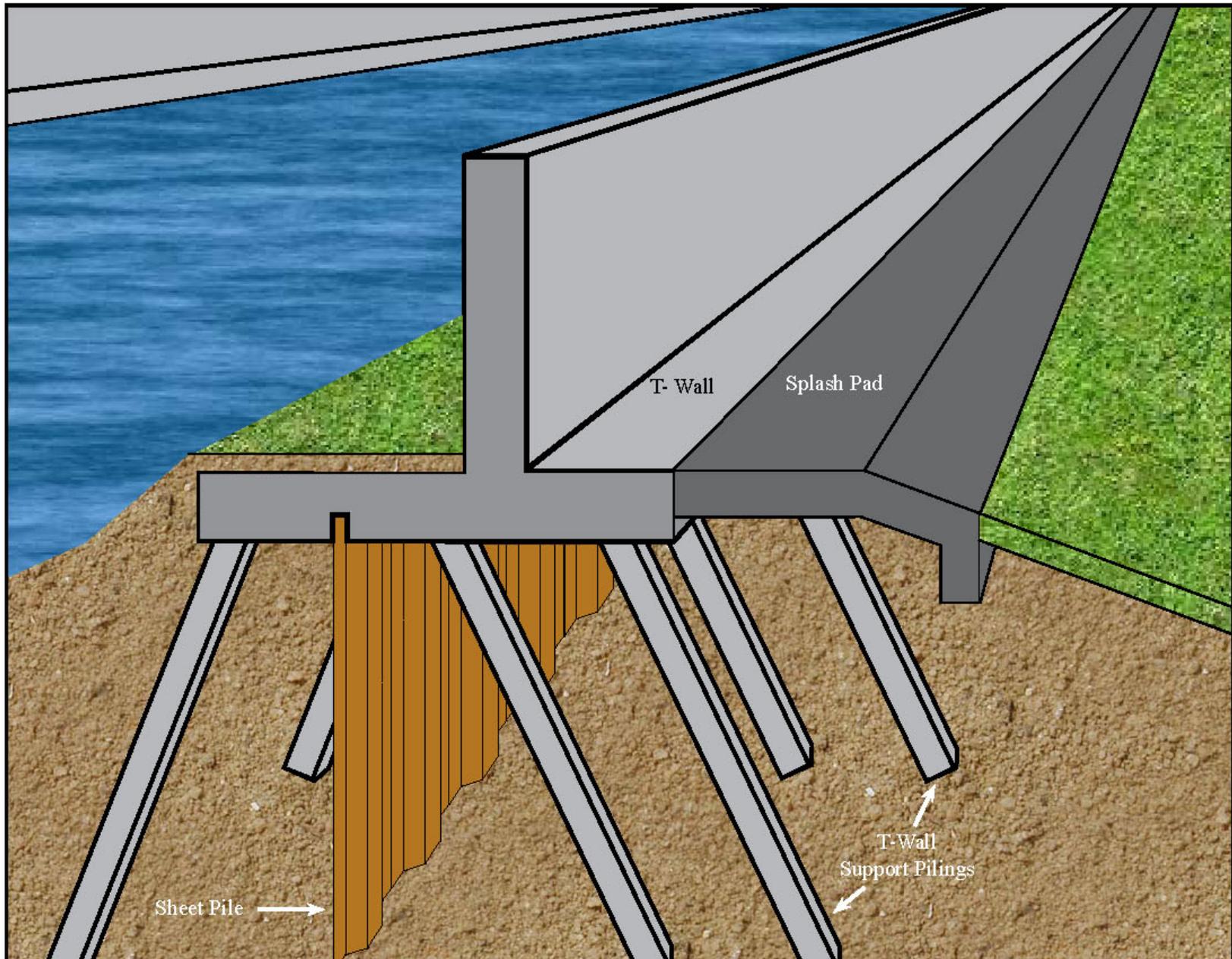
# Caernarvon Floodwall: Alternative 6



Realignment of T-Wall to the Far Western Side of Shallow Draft Elevating Boats



# T- Wall





# IER 10

## Chalmette Loop Levee

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## St. Bernard Parish Hurricane Protection System Chalmette Loop Levee

LPV 145

### Lake Pontchartrain and Vicinity (LPV) Summary

#### IER 10:

LPV 145 – Bayou Bienvenue to Bayou Dupre Levee

LPV 146 – Bayou Dupre to Hwy 46 Levee

LPV 147 – Hwy 46 Crossing and Bayou Road Flood Gate

LPV 148 – Verret to Caernarvon Levee

LPV 146

LPV 148

LPV 147



# Chalmette Loop Levee Engineering Alternatives

## T-walls on Existing Levee

- Wave berm and no armoring
- Wave berm and armoring
- Armoring and no wave berm

## Earthen Levee Alternatives

- Wave berm and stability berms
- Wave berm and stability berms with geotextiles and landside shift
- Full and  $\frac{1}{2}$  width wave berm, stability berms and with armoring
- Full and  $\frac{1}{2}$  half-wide berm, stability berms and without armoring
- Smaller wave berm
- Staged Lifts with and without wick drains
- Deep Soil Mixing with landside shift



# Chalmette Loop Levee T-Wall Alternatives

## Advantages

- No ROW required
- Reduced environmental impacts
- No additional interim measures required
- Small future lifts for wave berm

## Disadvantages

- Permanent structure
- Major reconstruction if altered
- Public perception of existing performance
- Routine inspections



# Chalmette Loop Levee Levee Alternatives

## Advantages

- Can easily modify
- Public perception
- No additional interim measures required
- Greater vehicular access
- Aesthetically pleasing
- Natural materials

## Disadvantages

- Additional ROW required
- Greater environmental impacts due to footprint
- Removal of scour protection for future lifts
- Quantity of Borrow required
- Relocation of canals in LPV 148.02

# LPV 146 Alternatives Right of Way Limits

Earthen Levee  
Protected side Shift  
with Narrow ROW  
(Estimated ROW)

Earthen Levee  
(Estimated ROW)

Existing  
ROW

Earthen Levee Narrow ROW  
and  
T-Wall Floodwall / Cap  
within existing ROW



0 250 500 1,000 1,500 2,000 Feet

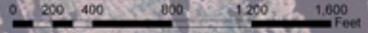


# LPV 148 Alternatives Right of Way Limits

Earthen Levee  
(Estimated ROW)

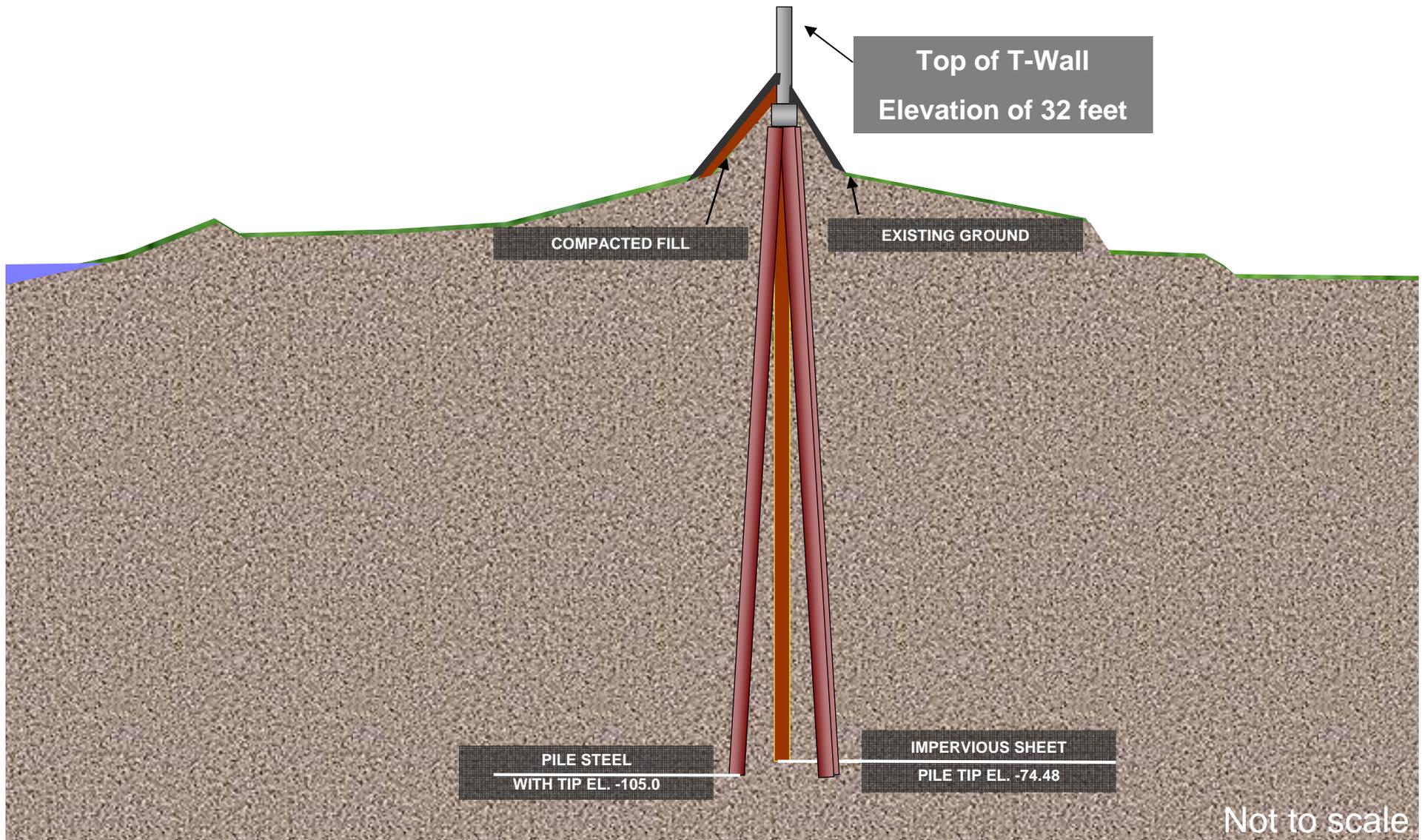
Existing  
ROW

Earthen Levee Narrow ROW  
and  
T-Wall Floodwall / Cap  
within existing ROW



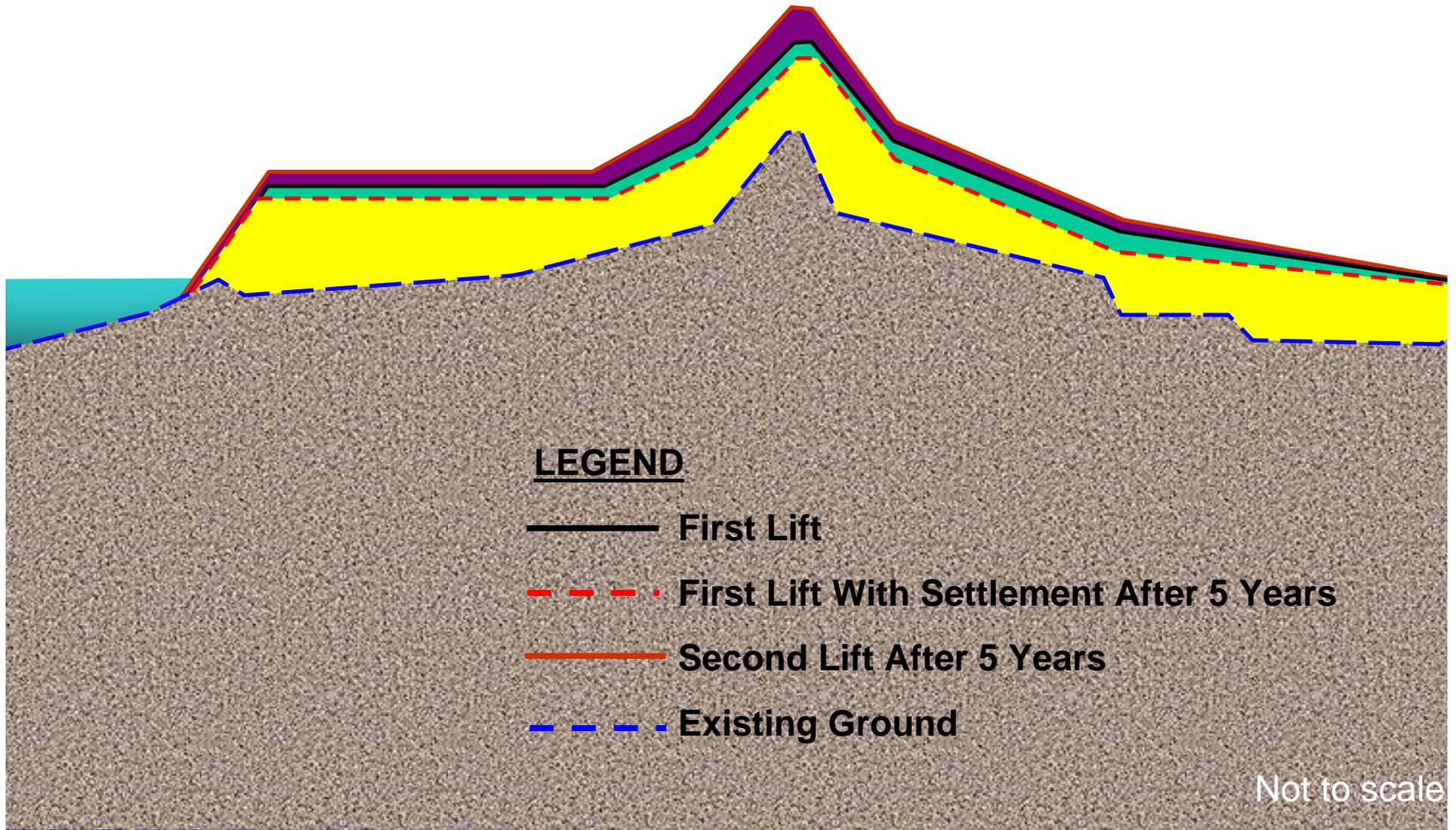


# Chalmette Loop Levee T-Wall Alternative





# Chalmette Loop Levee Levee Alternative





# Chalmette Loop Levee

## Highway 46 Crossing

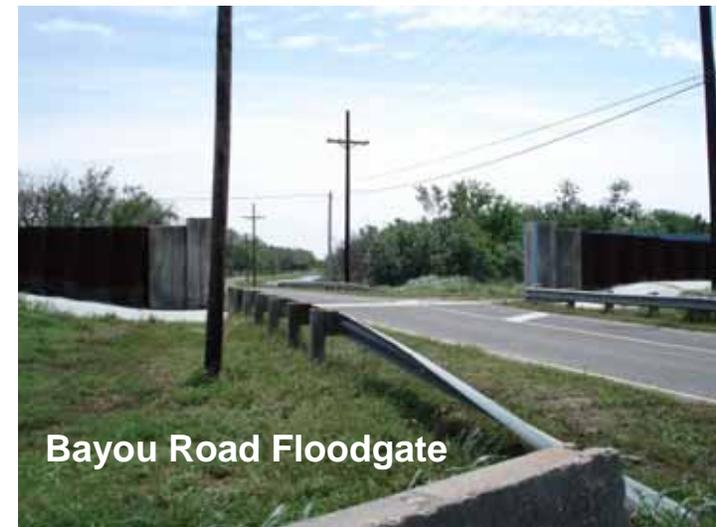
- 4 Lane Divided Highway
- Asphalt with gravel shoulders
- Crosses over Hurricane Protection

## Bayou Road Floodgate

- Appx 400 feet from Hwy 46
- Existing steel swing gate with tie-in T-walls & uncapped I-walls
- Fire Station & residences located on protected side
- Heavily vegetated marsh on flood side



Highway 46



Bayou Road Floodgate



# LPV 147

## Alternatives

- **Earthen Ramp Option**
  - **Raise levee up to 100-year level of protection**
  - **Add Pavement Section to top of levee**
  - **Close Bayou Road Floodgate**
  - **Provide access to Hwy 46 and Bayou Road**
- **Bridge Option**
  - **Provide bridge over T-wall protection up to 100-year level of protection**
  - **Close Bayou Road Floodgate**
  - **Provide access to Hwy 46 and Bayou Road**

# Earthen Ramp Option

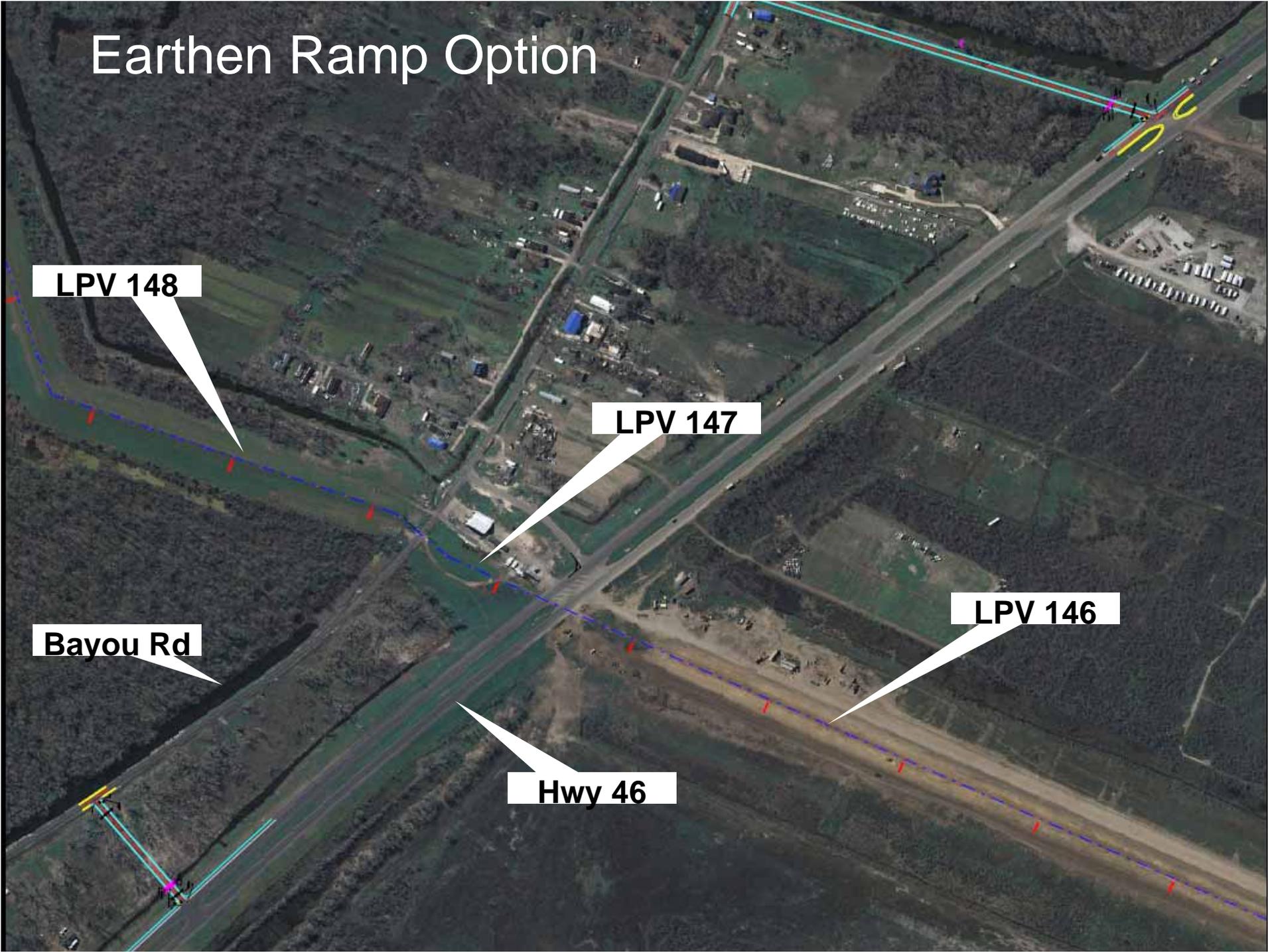
LPV 148

LPV 147

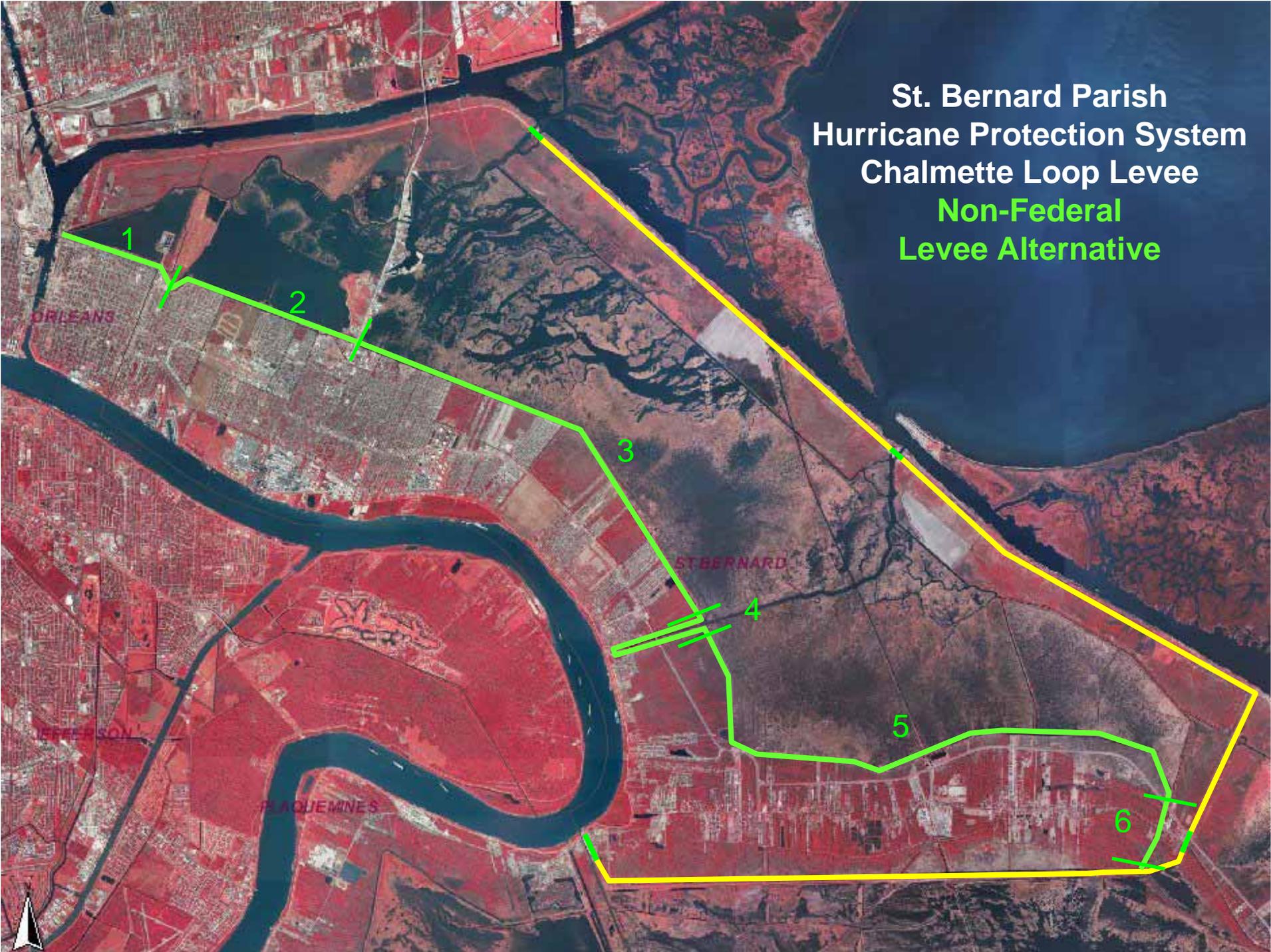
LPV 146

Bayou Rd

Hwy 46



**St. Bernard Parish  
Hurricane Protection System  
Chalmette Loop Levee  
Non-Federal  
Levee Alternative**



ORLEANS

ST. BERNARD

JEFFERSON

PLAQUEMINES

1

2

3

4

5

6



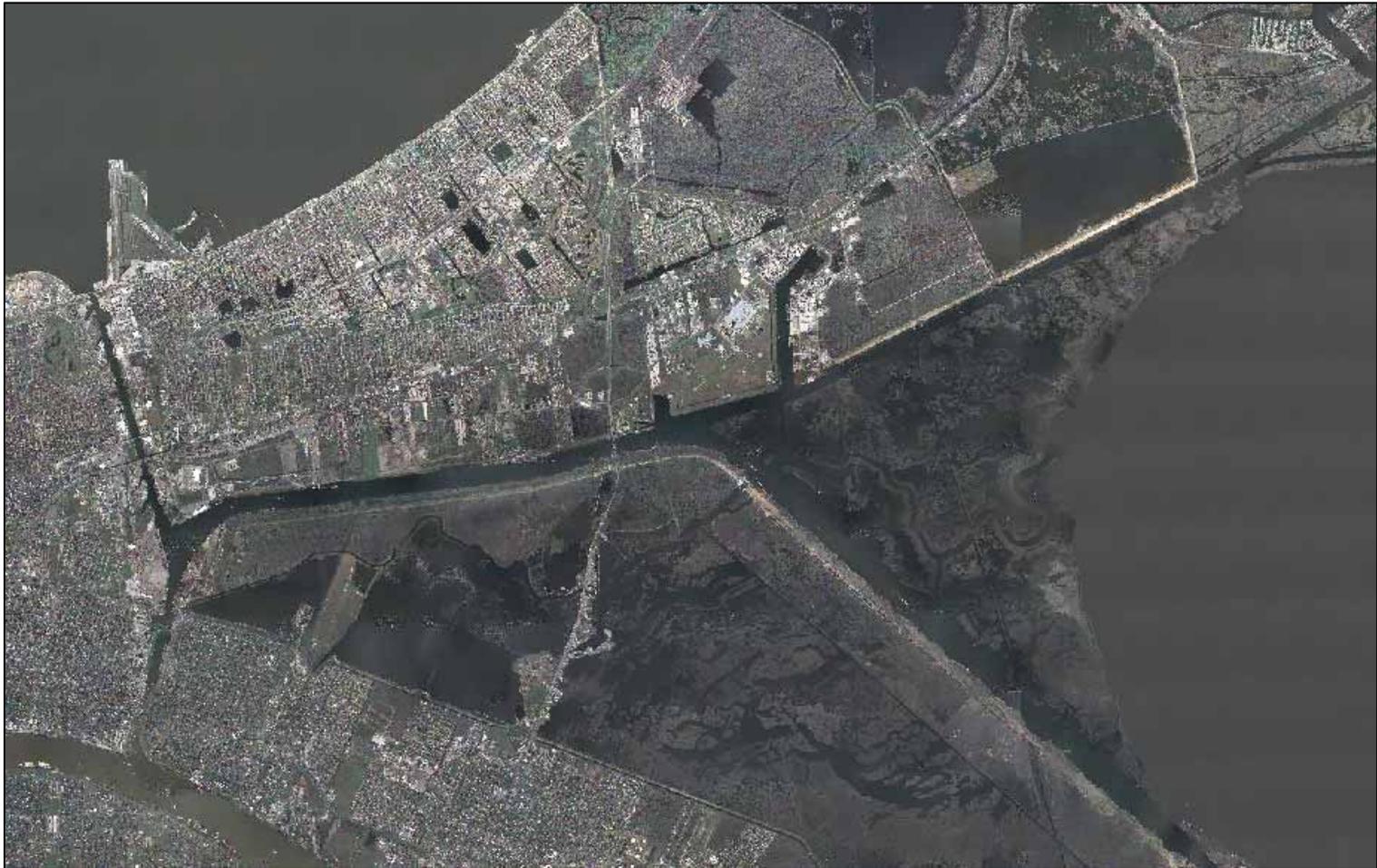
# Investigated Borrow-Site – System Wide







# Improving Hurricane Protection on the Inner Harbor Navigation Canal IER #11



— *One Team: Relevant, Ready, Responsive and Reliable* —



# Project Purpose

Provide 100-year level of protection to the Inner Harbor Navigation Canal (IHNC) from hurricane-induced storm surges by June 2011.

Advance measures could be in place by the beginning of hurricane season 2009.



# Where we've been

- **IER #11 Tier 1 Decision Record signed March 14<sup>th</sup>**
- **Investigated alternatives for providing improved protection for the IHNC**



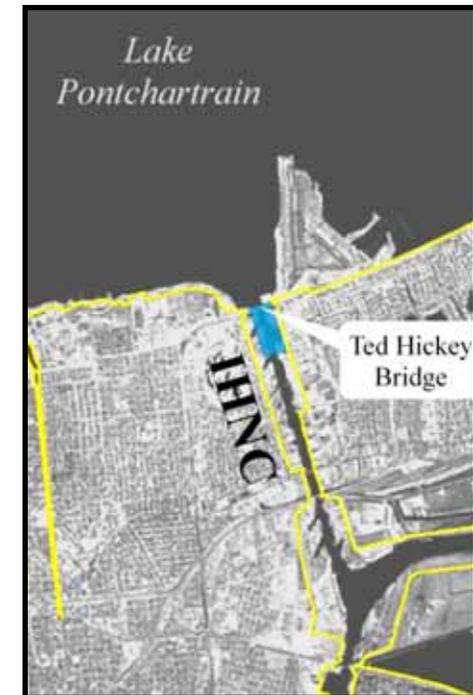
# Where we've been

- Selected “Storm Surge Protection Structures” alternative to protect from Lake Borgne surge and Lake Pontchartrain surge
- Selected “Pontchartrain 2” and “Borgne 1” location ranges

*Borgne 1*



*Pontchartrain 2*





# IER #11 Tier 2: Where we're going

## Two Tier 2 IERs

- **IER #11 Tier 2 Borgne:**

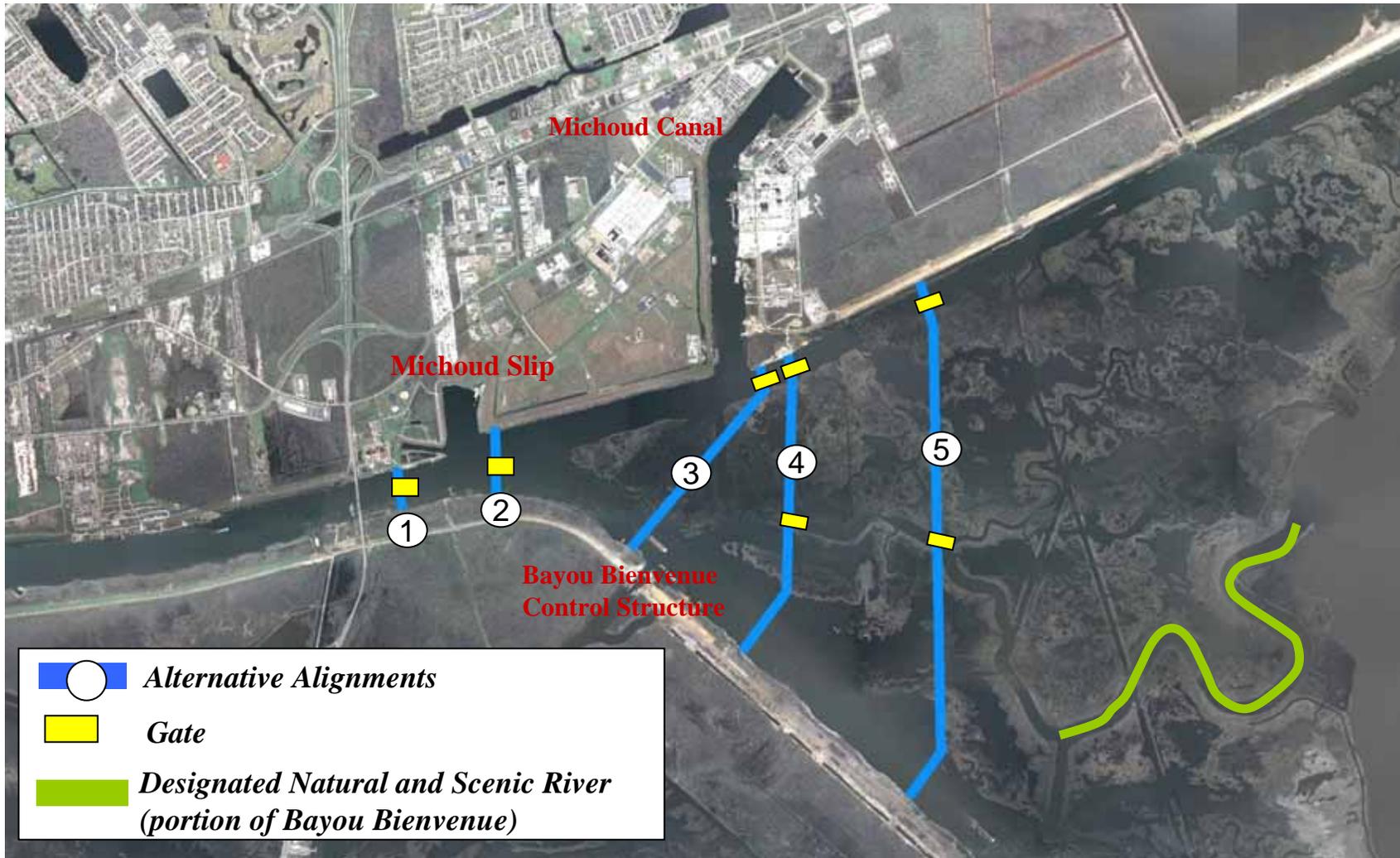
Alignment and design alternatives within “Borgne 1”

- **IER #11 Tier 2 Pontchartrain:**

Alignment and design alternatives within “Pontchartrain 2”  
(alternatives to be developed this summer)



# IER #11 Tier 2 Borgne Alternative Alignments Overview

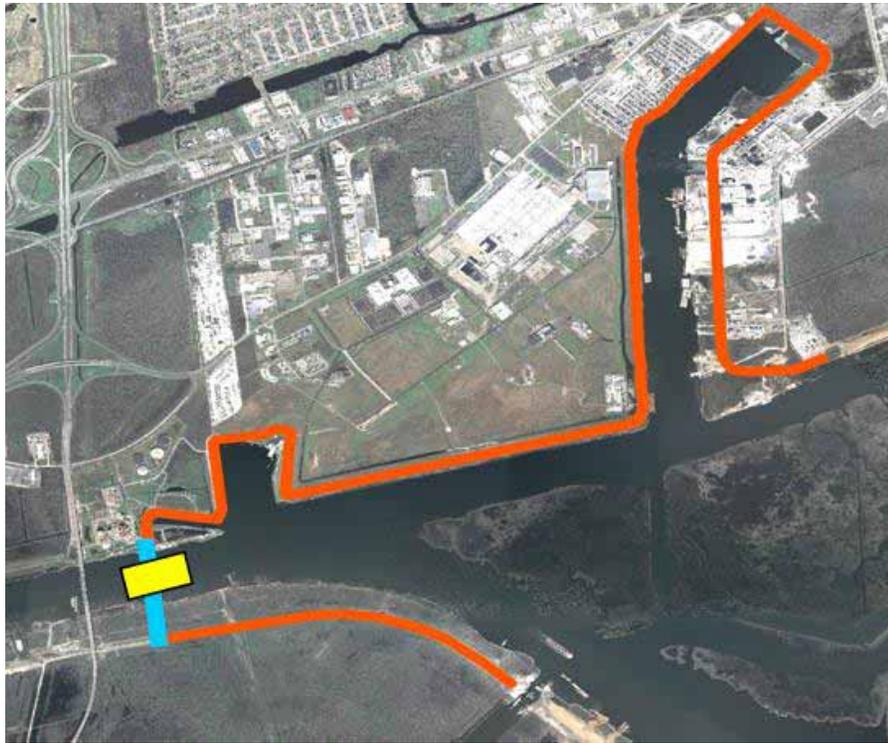


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# IER #11 Tier 2 Borgne Alternative Alignments

Alignment 1



Alignment 2



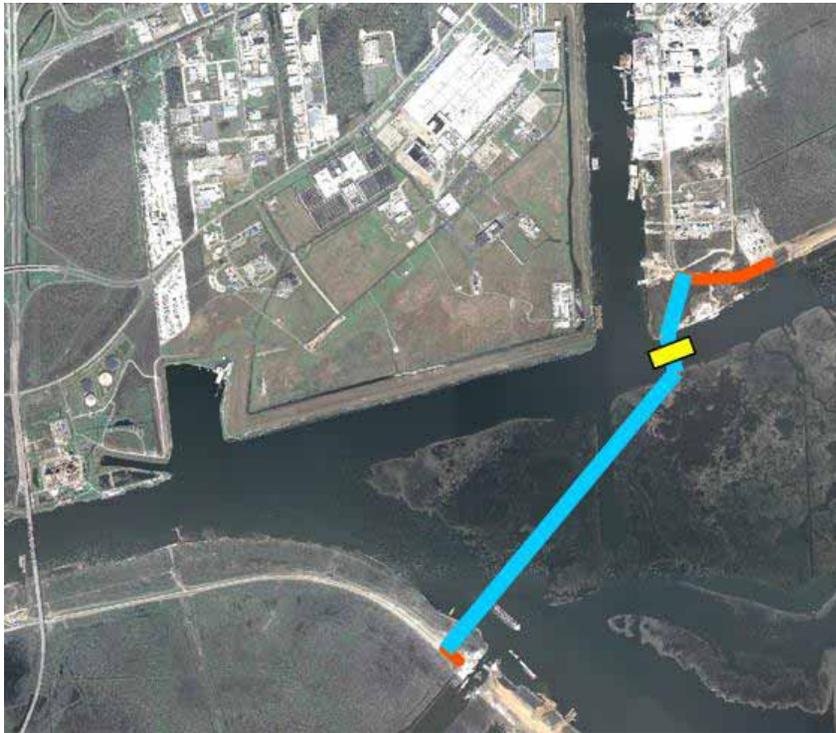
-  Levees & Floodwalls to be Raised
-  Alternative Alignments
-  Gate

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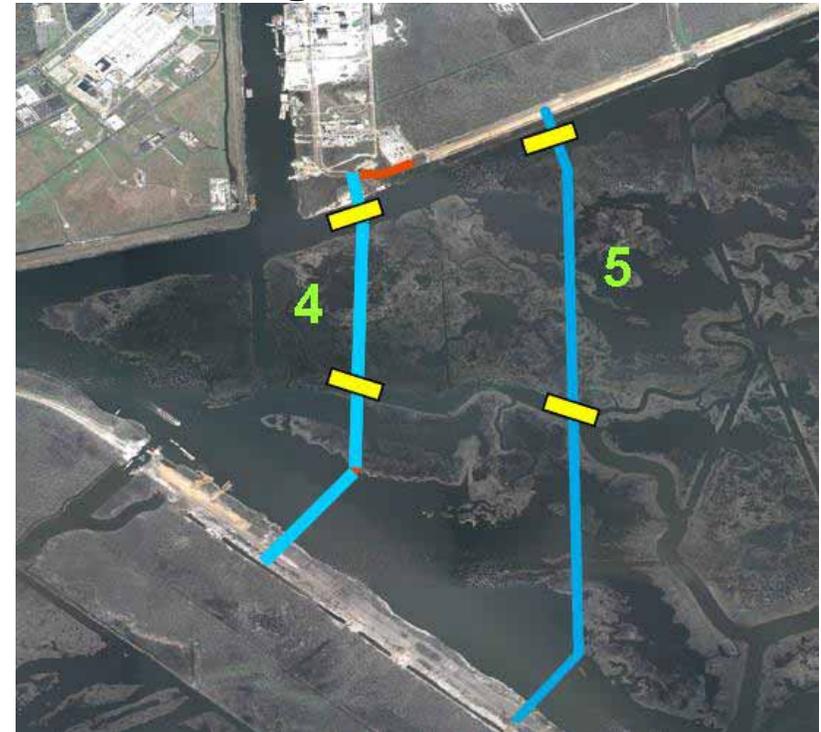


# IER #11 Tier 2 Borgne Alternative Alignments

## Alignment 3



## Alignment 4 & 5



	Levees & Floodwalls to be Raised
	Alternative Alignments
	Gate

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# Project Feature Alternatives

## Gate

*(GIWW gate on all alternative alignments; Bayou Bienvenue gate on alternative alignments 4 & 5)*

- A. Vertical lift gate**
- B. Sector gate**
- C. Concrete barge gate**

**MRGO** Closure structure pending de-authorization  
*(applicable to alternative alignments 3, 4 & 5)*

- A. Earthen closure**
- B. Sheet pile cells**
- C. Structural walls**



# Project Feature Alternatives

## Barrier

*(applicable to alternative alignments 3,4 & 5)*

**A-1. Traditional levee**

**A-2. Traditional levee with flow structures**

**B-1. Geotextile levee**

**B-2. Geotextile levee with flow structures**

**C-1. Structural wall**

**C-2. Structural wall with flow structures**



# Opportunities for Public Input

- **Monthly Public Meetings throughout New Orleans Metro Area**
  - Make sure to sign in tonight to get on our meeting notification mailing list
- **Comments can be submitted at any time at [www.nolaenvironmental.gov](http://www.nolaenvironmental.gov)**
- **Individual Environmental Reports (IER) 30-day Public Review**

Questions and comments regarding Hurricane Protection Projects

should be addressed to:

**Gib Owen**

**PM-RS**

**P.O. Box 60267**

**New Orleans, LA 70160-0267**

**Phone: 504-862-1337**

**E-mail: [mvnenvironmental@usace.army.mil](mailto:mvnenvironmental@usace.army.mil)**

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**Welcome to NOLA Environmental!** This site has been set up to share with the public the efforts being made by the U.S. Army Corps of Engineers and other Federal and state agencies in south Louisiana regarding the environmental compliance for proposed Federal and state Hurricane Protection Projects. Additional information pertaining to other Federal and state agencies' hurricane recovery efforts in southeast Louisiana will also be posted on the site as it becomes available. [Learn more...](#)

### Announcements

- [IER 22 Draft Public Comment Period: 4/01 - 4/30](#)
- [IER 23 Draft Public Comment Period: 3/24 - 4/23](#)
- The Decision Record for [IER 11](#) has been signed by the District Commander: [Final IER 11 \(News Release\)](#)
- [IER 14 \(Map\)](#) and [IER 15 \(Map\)](#) Sec 404 (wetland impacts) Public [Comment Period: 3/10 - 4/14](#)
- The Decision Records for [IER 18](#) and [IER 19](#) have been signed by the District Commander

### FEATURED PROJECT



USACE-MVN Emergency Alternative Arrangements  
Greater New Orleans  
Hurricane and Storm Damage  
Risk Reduction System Projects

### Upcoming

- [04/09/2008 - Public Meeting \(IERs 1 2 3 & Borrow\)](#)
- [04/10/2008 - Neighborhood Focused Public Meeting \(IERs 4 5 & 11\)](#)

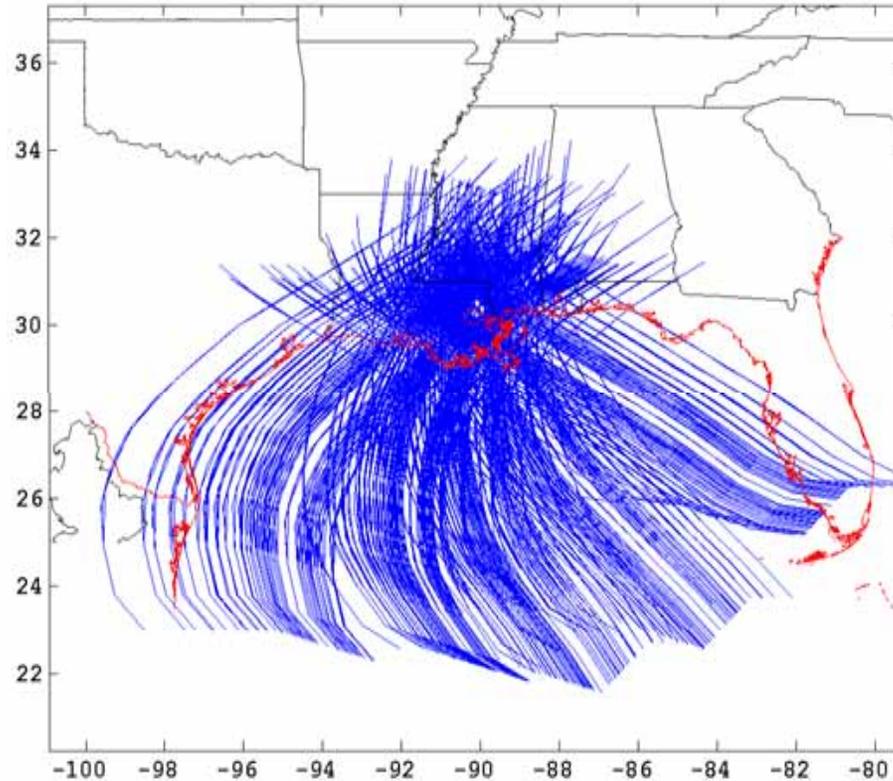
[More...](#)

### Newly Available

- [26 February 08 Public Meeting Summary IERs 4 5 Borrow](#)
- [28 February 08 Public Meeting Summary IERs 1 2 3 and Borrow](#)

[More...](#)

# Hurricane Paths Considered in the Risk Analysis



**3 HPS Geometries**  
*Pre-Katrina*  
*Current (1 June 07)*  
*100-year LOP (~2011)*

**152 storm hydrographs**

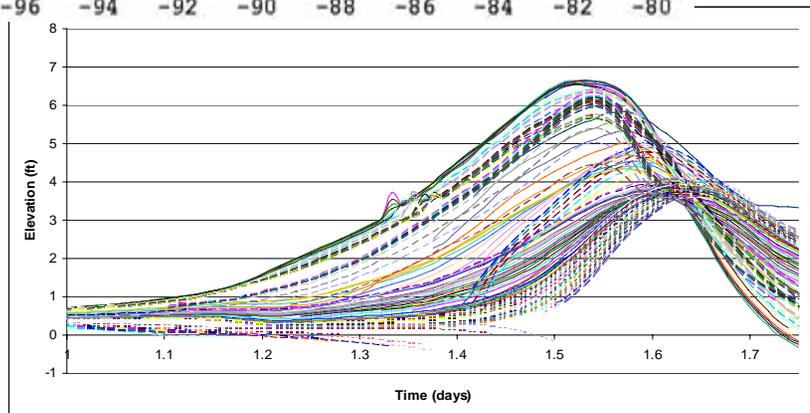
**350+ features**

*Floodwalls*

*Levees*

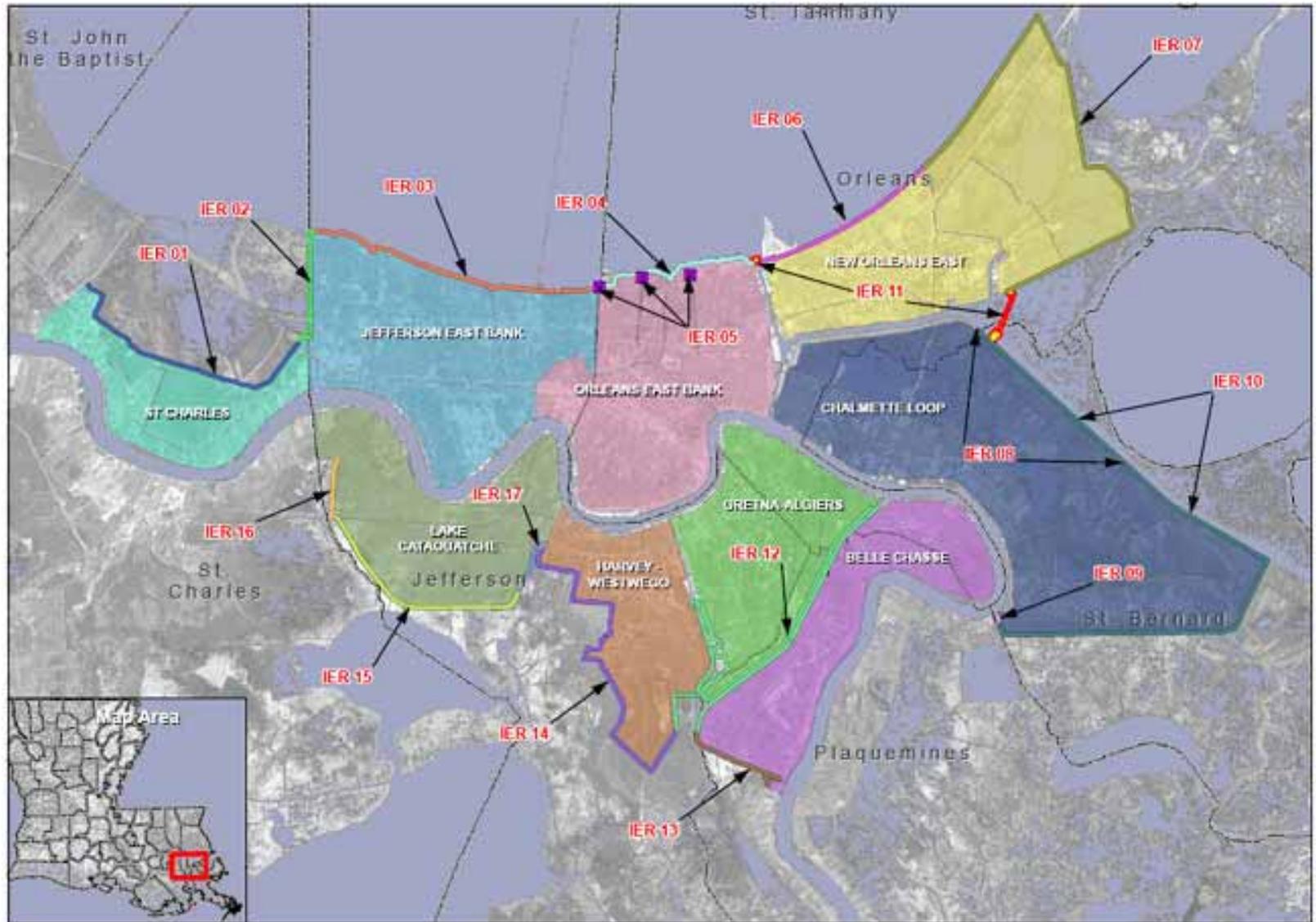
*Pumps Stations*

62,928 Hurricane  
Hydrographs





## Sub Basins and Representative Project Groups



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# IHNC Surge Protection

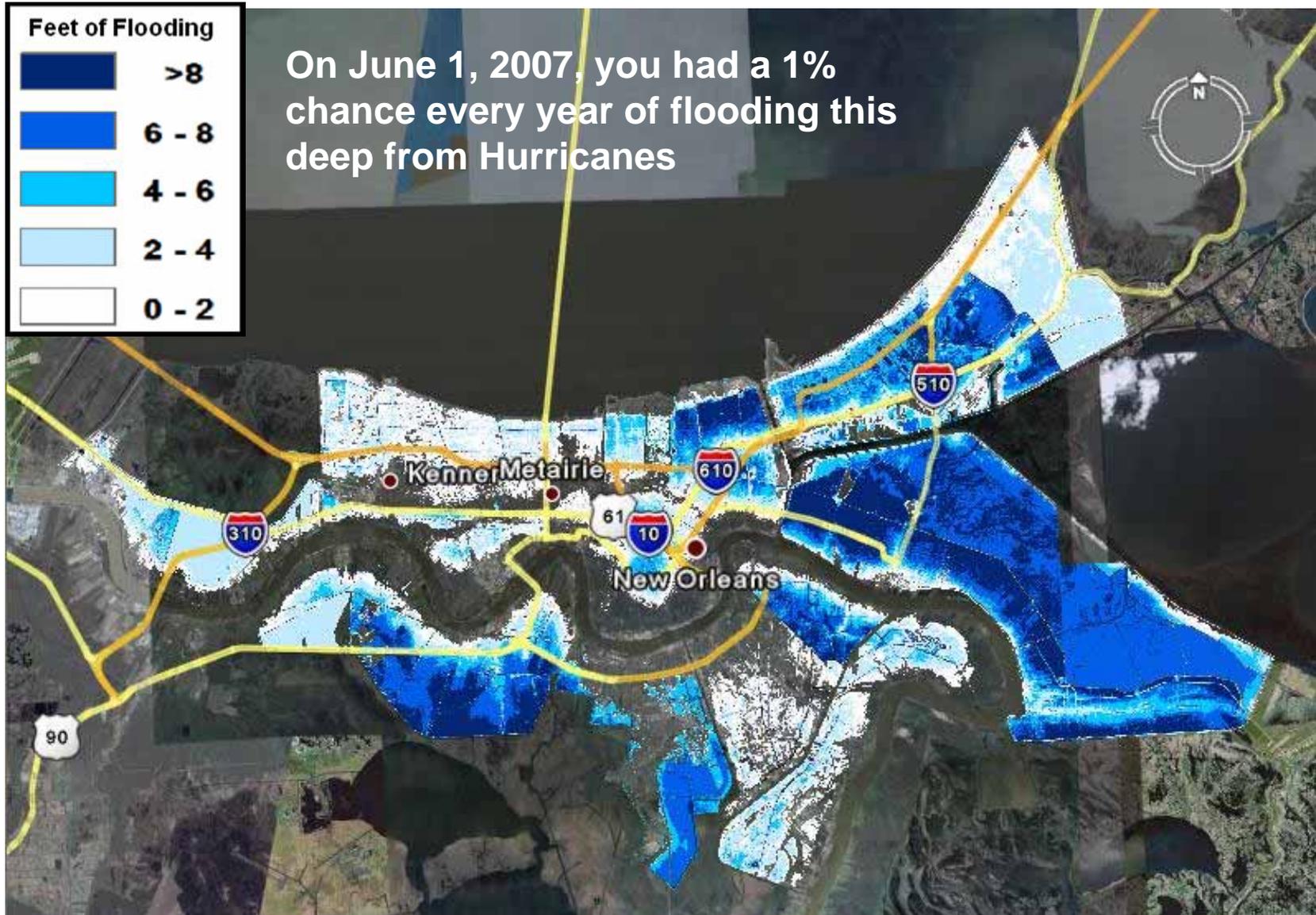
cost \$500 Million to \$1 Billion



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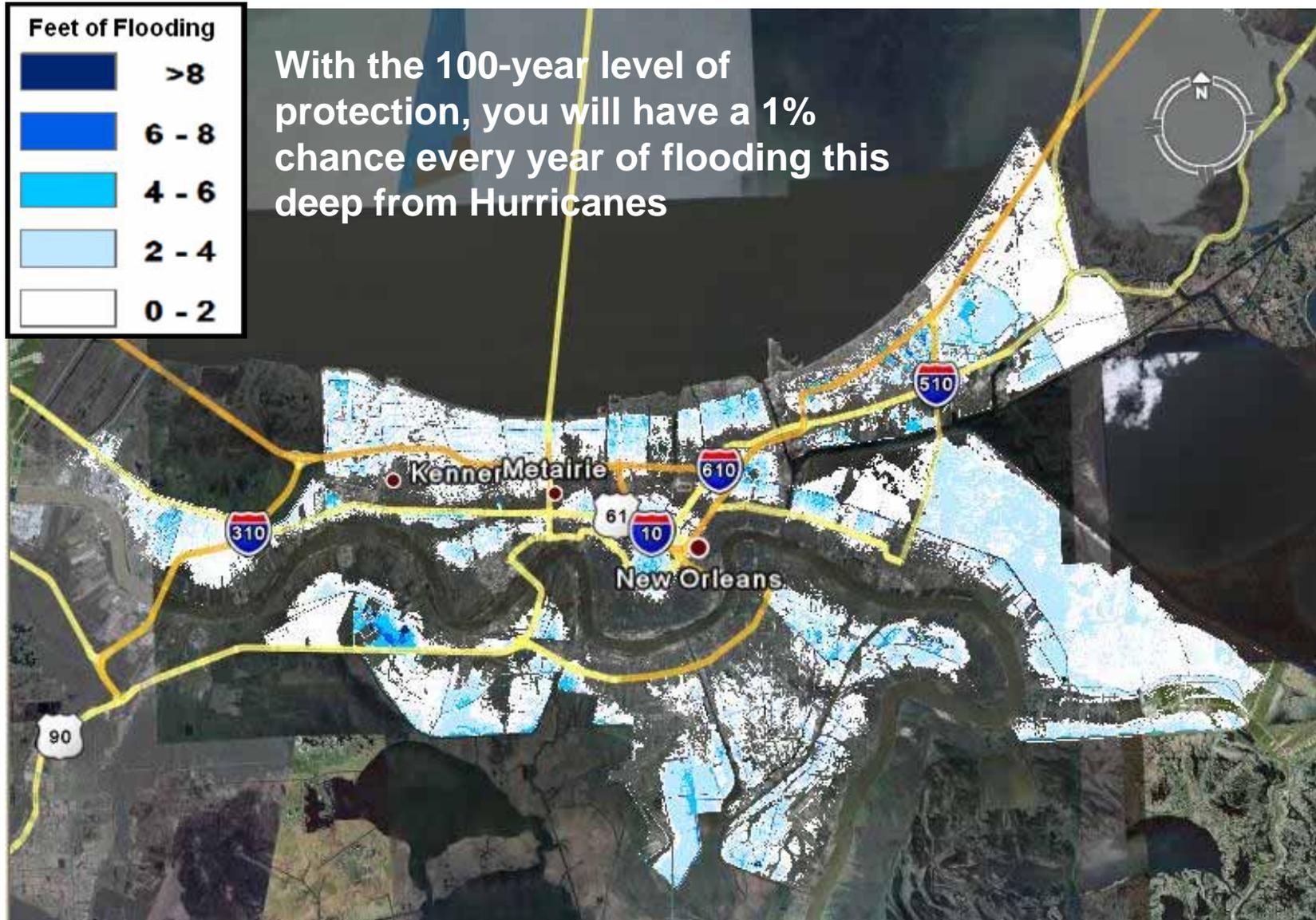
# Current Flood Risk



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# 100-year Protection Flood Risk

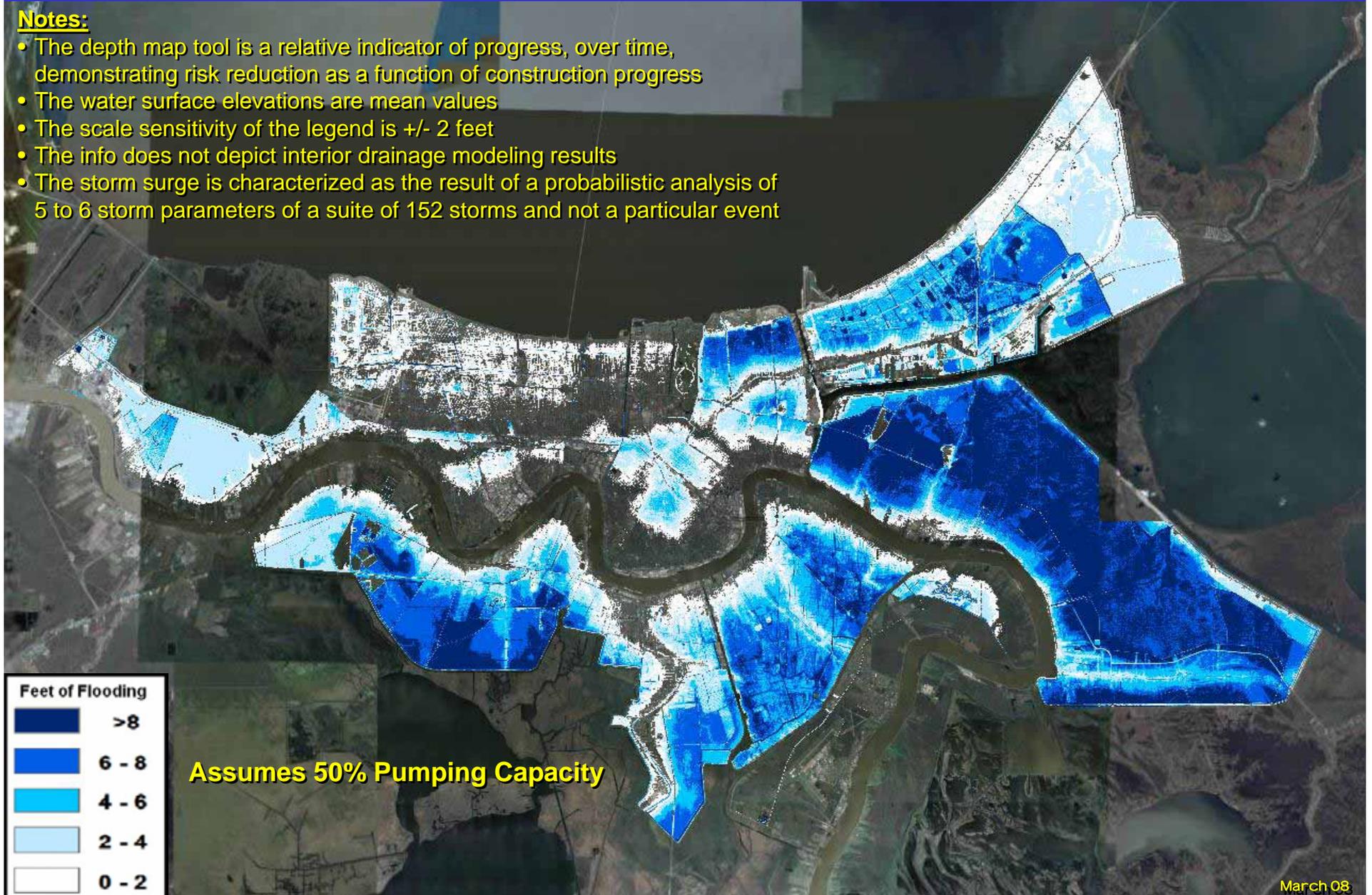


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# On June 1, 2007, you had a 1% chance every year of flooding this deep from Hurricanes

## Notes:

- The depth map tool is a relative indicator of progress, over time, demonstrating risk reduction as a function of construction progress
- The water surface elevations are mean values
- The scale sensitivity of the legend is +/- 2 feet
- The info does not depict interior drainage modeling results
- The storm surge is characterized as the result of a probabilistic analysis of 5 to 6 storm parameters of a suite of 152 storms and not a particular event



# With the 100-year level of protection, you have a 1% chance every year of flooding this deep from Hurricanes

## Notes:

- The depth map tool is a relative indicator of progress, over time, demonstrating risk reduction as a function of construction progress
- The water surface elevations are mean values
- The scale sensitivity of the legend is +/- 2 feet
- The info does not depict interior drainage modeling results
- The storm surge is characterized as the result of a probabilistic analysis of 5 to 6 storm parameters of a suite of 152 storms and not a particular event

